

THE TREATMENT OF ANEURISM OF THE EXTERNAL ILIAC ARTERY BY DIGITAL COMPRESSION.

WITH REPORT OF A CASE.

BY FRANCIS J. SHEPHERD, M.D., C.M.,
OF MONTREAL,

Professor of Anatomy and Lecturer in Operative Surgery in McGill University; Senior Surgeon to the Montreal General Hospital.

THE methods of treating aneurism have been many and various. In the time of Celsus the tumor was cut into and, to arrest the frightful hæmorrhage which resulted, a heated iron was thrust into the wound. Rufus and Antyllus cut into the aneurism and cleared out the contents, but previously tied the vessel above and below the aneurismal dilatation. Morel in 1674 introduced the tourniquet, and this prevented the very severe hæmorrhage which always resulted from opening an aneurismal tumor, and enabled the operator to tie, at least temporarily, the vessel.

The surgical operations for the cure of aneurism were so dangerous, that in cases where the aneurism occurred in the extremity, amputation above the aneurismal tumor was often resorted to in preference to interfering with the aneurism itself. Anel in 1740 first showed that it was not necessary to open the tumor to cure the aneurism, and he cured a case of aneurism at the bend of the elbow by ligating the artery above the tumor and without opening the sac.

To John Hunter we are much indebted, for he first taught that it was not essential, in order to cure the aneurism, to arrest the flow of blood completely, but only, as he said, "to take off the force of the circulation;" and thus he showed that if the artery were tied some distance above, and where it was healthy, a cure would result.

Although pressure directly over the aneurism has been applied for the cure of aneurism from time immemorial, it was

not until the establishment of the Hunterian operation that pressure was applied to the artery above the aneurismal sac. At first this was not a successful treatment, chiefly because it was applied too energetically and resulted in pain, inflammation, and sloughing of the compressed parts, and was practically abandoned as a mode of treatment. Later, however (about 1825), the treatment by compression was resorted to again, but in a more scientific way and with better instruments, such as those of Signoroni, Hoey, and later that of Carte and others. The pressure was neither severe nor constant, was maintained only so long as it could be conveniently borne by the patient, and as soon as there was swelling, numbness, throbbing, etc., the pressure was reduced or removed altogether. When the tissues had regained their normal condition the pressure was reapplied. In this way the circulation in the tumor was reduced and coagulation favored; the tumor usually diminished in size, became harder, and ultimately, in a favorable case, the pulsation would disappear altogether. It was not necessary that the pressure should always be at one point, and sometimes two instruments were used,—one was slackened and the other screwed tight so as to compress the vessel, and *vice versa*.

Digital compression was first employed as a sole method of treatment by Dr. Knight, of New Haven, Connecticut, in 1848, and was successful. Vanzetti, of Padua, reported cases successfully treated by this method in 1853–1855, and he claims priority in the method, for he treated a case of popliteal aneurism by digital compression in 1846. It is no doubt chiefly due to Vanzetti's advocacy of this form of compression that it was so generally adopted.

The advantage of digital compression is that no apparatus is necessary, the finger being the sole means by which the artery is controlled above the aneurism. It is necessary to have relays of assistants in order to effectually employ this treatment. It can be better undertaken where there is a medical school and where intelligent students can be made use of to carry out the treatment. The vessel is compressed by the

finger, and as soon as one person gets tired he is replaced by another, who compresses a little higher up or lower down. Few care to keep up the compression more than five or ten minutes at a time. Continuous compression can thus be kept up for many hours by having shifts of a dozen students alternating with one another. The part to be compressed should be carefully shaved and dusted with powder. After pressure has been applied for a time, the patient may feel much pain, and this should be controlled by a hypodermic injection of morphine. Twenty-four hours are usually sufficiently long to keep up the compression, and in the case reported below the pulsation ceased completely in the aneurism in twelve hours.

It is the fashion at present, as perhaps it has always been, to run after new methods of treatment and to forget that there is anything good in the old. Now digital compression in some cases is of great value, and, even if it fails, does not interfere with the employment of other measures later on. In the form of aneurism in which it was tried in the case reported below, it is especially of service, and if successful prevents the patient running the risk of a most serious operation. I refer to cases of inguinal aneurism involving the femoral and external iliac artery.

In this case the man, first of all, objected strongly to a cutting operation; secondly, the aneurism extended up so far that it was thought that if any ligature of a vessel was undertaken it would have to be the common iliac. The good results in this case fully justified the reasonableness of the treatment.

J. H., aged forty-three years, married, founder by trade, was admitted into the Montreal General Hospital, August 19, 1902, complaining of a swelling in the groin. The patient has lived in Montreal for the past ten years, before that he lived in England. He is a moderate-sized, well-built man; never has had any severe illness; never had venereal disease in any form; is a very moderate smoker, and uses alcohol very rarely.

History.—He strained himself lifting a heavy weight some months ago. About two months ago he noticed a swelling in the groin, which pulsated and was soft and painless. This swell-

ing gradually enlarged and became harder, and seemed to grow upward into the abdomen. Now there was difficulty in stooping, pain, and some swelling of the limb, but he worked up to the time of his admission. Of late he had not noticed much increase in the size of the tumor.

On admission, the following note of the condition of the tumor was made: In the right groin and extending upward in the course of the external iliac artery is a fusiform swelling which has all the characteristics of an aneurism, pulsates, and the pulsation is distensible. On pressing deeply in the iliac fossa above the tumor the pulsation in the tumor is arrested and the sac becomes flaccid. On removing pressure, pulsation is resumed. The tumor feels bilobed on palpation, the smaller part forming the lower lobe. This partition of the tumor is evidently due to Poupart's ligament stretching across it. It seems to extend some three inches above Poupart's ligament, and on deep pressure its upper limit can be made out and appears to overlap the artery.

The patient objecting to operation, it was thought better to try palliative means until the Session opened and relays of students could be obtained for digital compression; so he was put on Tufnell's treatment and ice-bags applied over the tumor. He was given iodide of potassium internally and very little fluid. In a couple of weeks there was a marked decrease in the size of the tumor, and the pulsation did not seem so strong. The tumor now appeared to be a little larger than a hen's egg. It remained stationary after this and did not decrease further. By the end of September, most of the students having returned, digital compression was commenced. The parts were shaved and washed with alcohol and dusted with talc powder. Students were divided into three groups of twelve, each group being on duty eight hours, each student compressing the artery for five minutes. At the end of twelve hours pulsation had entirely ceased, but compression was continued in a more moderate degree for twelve hours longer. After the first four or five hours the patient complained bitterly of pain, although there was no excoriation at points of compression. The pain was easily controlled by hypodermic injections of morphine. After twelve hours the patient had no more excessive pain, in fact was comfortable. His leg was now wrapped in cotton wool and carefully bandaged.

The patient was kept in bed a couple of weeks more, and all

this time the tumor was contracting and hardening. I saw him six months after his leaving the hospital, and, although the tumor could be easily felt, there was no pulsation and it was very hard.

I saw a similar case treated successfully in this way many years ago by the late Professor Fenwick, of McGill University, and this it was that induced me to make a trial of the treatment by digital compression.